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Exploring thyromimetics in endocrine disruptors.

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The flame retardant tetrabromobisphenol A (TBBPA) is depicted to inhibit thyroid hormone (T3) binding to its receptor (TR) and stimulated the GH3 cell growth (BBRC 293:554-9, 2002). O-text- butylphenol (otBP) was also reported to recruit a coactivator, TIF 2 to the ligand binding domain of TR (Abstract of the 4th annual meeting of Japan Endocrine Disruptors research, pp188). Previously, we showed that BPA acts as T3 antagonist (abstract in the same as above). In this study, we examined the effects of TBBPA and otBP on the YR-mediated gene transcription using the established system, which is used for BPA. When human TRα1 or TRβ1 was transiently transfected with the reporter plasmid, TRE-TK-Luc, into TSA201, which is a derivative of human embryonic 293 cells, both compounds showed no apparent thyromimetic effects without T3. However, both of them exhibited weak synergistic effects in a dose-dependent manner in the presence of physiological concentration of T3. These data suggested that both chemicals may have different disrupting action rather than prior reports at the transcriptional level.